NTNU
Norwegian University of Science and Technology

IDG2001 - Cloud Technologies
NTNU i Gjøvik

25-02-2021

- Assignments are voluntary.
- Exercises/problems can be solved in predefined groups of 2-3 students.
- Deadline for project submission 24th of March 2021.

Q1. The bank called 'ABC Bank' is a large international banking firm which has multiple branchers in different cities. It offers many financial services including general banking, online banking, investments, credit cards and etc. ABC bank wants to expand their business and move to cloud computing technology.
The scenario: when the new customer wants to open the new bank account, update this

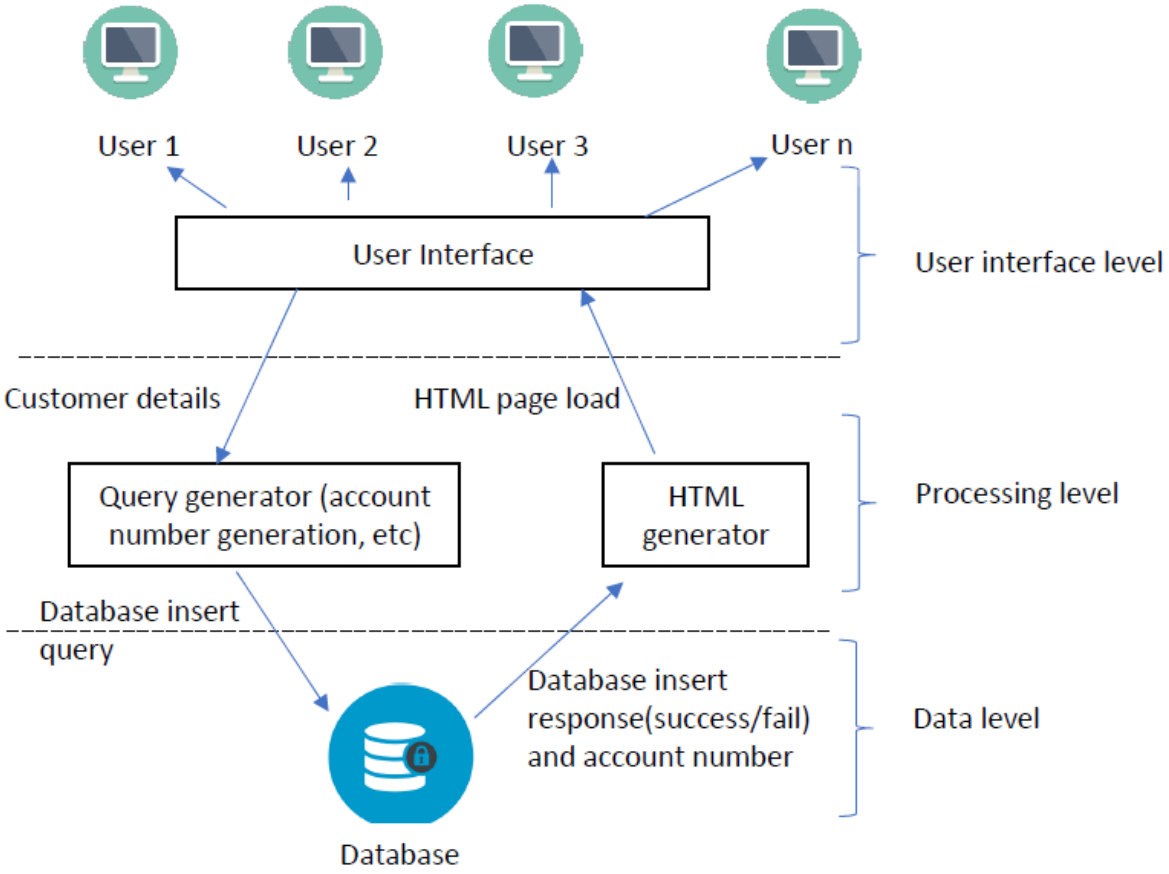


Figure 1:client-server architecture

account details and delete his account.

You need to design simple HTML pages (User interface level),

1. Clone the sample project

git clone https://sankinir@bitbucket.org/sankinir/cloud.git

2. Check the cumber is exist in the database
3. If not, Insert the user details
4. Retrieve the customer account number
5. Update the customer details using customer personal number
6. Delete the existing customer using personal number

Sample Database structure (Data level),

Id	Personal_number	Account_number	First_name	Last_name	Date_of_birth	City	Created_date

Create mongoDB,

1. Create the mongoDB account https://www.mongodb.com/
2. Follow the steps to create DB https://docs.atlas.mongodb.com/getting-started/

https://docs.mongodb.com/drivers/node/quick-start/

Processing level,

Create, Read, Update, and Delete (CRUD)

Create (POST) - Make something
Read (GET)- Get something
Update (PUT) - Change something
Delete (DELETE)- Remove something

Figure 2: Image Source from https://zellwk.com/blog/crud-express-mongodb/

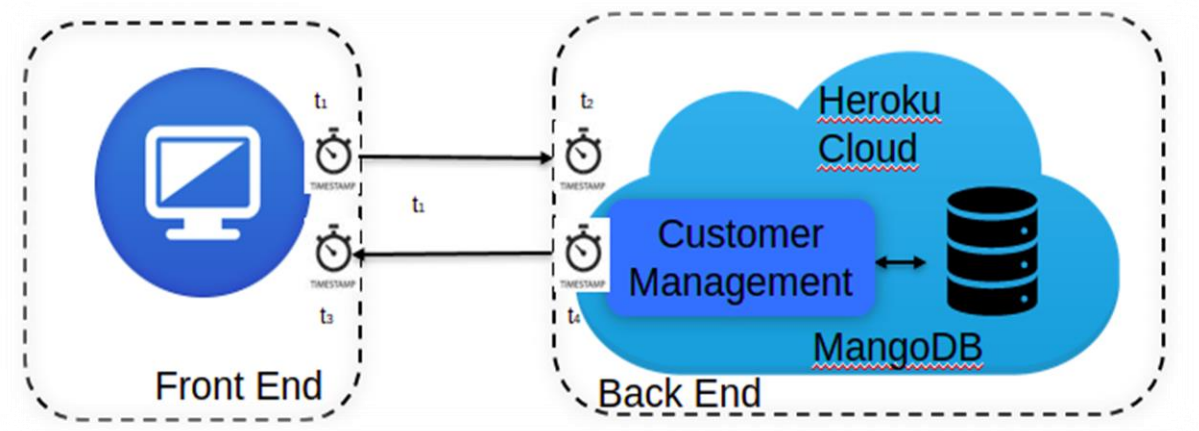
Express is a built-in middleware function in Express. It parses incoming requests with JSON payloads and is based on body-parser. It simplifies the server creation process that is already available in Node. In case you were wondering, Node allows you to use JavaScript as your server-side language. https://expressjs.com/en/5x/api.html

MongoDB is a database use to store your application data.

Basic functions should work in this project (25 points),

1. Check the customer is exists or not (using customer personal number).
2. If customer isn't exits in DB, insert customer details.
3. Display the customer account number.
4. Update the customer details (example, customer last name).
5. Delete ethe existing customer using customer personal number.
6. Deploy the project to Heroku server.

Additional 5 points



Measuring latency breakdown for your running system.

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End-to-end latency = t3-t1

Cloud processing latency = t4-t2

Communication latency = (t3-t1) - (t4-t2)

<payload size can be considered>

Suggested Schedule:

Week 2- Development of a basic running system

Week 3 - Preliminary evaluation,

Week 4 - Final deliverables

Project submission:

- You have one month to complete the working project.
- Only one group member should upload the project.
- Report is not mandatory; You can upload project with Heroku URL.
- Project submission deadline: 24th March 2021.

  (PLEASE RESPECT DEADLINES)

Marks

- Client server design and validation – 5 points.
- Database design – 2 points.
- Database connection – 2 points.
- Client-server connection – 2 points.
- At least 1 REST API (https://restfulapi.net/) should use (get, post, put, delete) - 7 points.
- At least 1 DB query should work – 5 points.
- Deployed to Heroku server – 2 points.
- Additional task – 5 points.